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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,185	07/03/2001	Kouji Kumada	70904-56232	9635

21874 7590 02/11/2004

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EXAMINER

LESPERANCE, JEAN E

ART UNIT	PAPER NUMBER
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2674

3

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/898,185

Applicant(s)

KUMADA ET AL.

Examiner

Jean E Lesperance

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 10-12, 14, 18-21, 23 and 27-30 is/are rejected.
- 7) ☒ Claim(s) 5, 7-9, 13, 15-17, 22, and 24-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

Claims 1-30 are presented for examination.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6, 10-12, 14, 18-21, 23, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent # 6,307,681 (Aoki et al.).

As for claims 1, 12, and 21, Aoki et al. teach the switching element 114 is a three-terminal type switching element, for example, a TFT (thin-film transistor)(Fig.1) corresponding to said drive circuit supplying source signal from source driver to pixel electrodes through switching by means of thin film transistors according to scan signal from a gate driver, the difference in potential from data line to data line is eliminated prior to the writing of the image signal, the potentials at the data lines are substantially equalized, and the luminance non-uniformity and chrominance non-uniformity are thus compensated for (column 24, lines 13-17) corresponding to said drive circuit comprising adjusting means for adjusting potential differences between the pixel electrodes and a common electrode the supply amount of charge precharged at the data lines is adjusted by changing the precharge signal waveform, when manufacturing

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variations make voltage-luminance (transmittance ratio) characteristics of the electro-optical apparatus different between a left-hand portion and a right-hand portion of the screen in the direction of data line layout (scanning direction)(column 5, lines 11-18) corresponding to wherein the adjusting means is composed of voltage level altering means for shifting voltage levels of the source signals supplied by the source driver equally for all the pixel electrodes. The prior art does not explicitly teach shifting voltage levels of the source signals supplied by the source driver equally for all the pixel electrodes. However, the prior art teaches the supply amount of charge precharged at the data lines is adjusted by changing the precharge signal waveform, when manufacturing variations make voltage-luminance.

Thus, it would have been obvious to a person of ordinary skill in the art to modify the supply amount of charge precharged at the data lines is adjusted by changing the precharge signal waveform, when manufacturing variations make voltage-luminance to achieve the function of shifting voltage levels of the source signals supplied by the source driver equally for all the pixel electrodes because this would provide an electro-optical that controls the generation of a non-uniformity in luminance.

As for claims 2-4, Aoki et al. teach the precharge circuit causes the switching means to concurrently conduct, parasitic capacitance of all data lines is attached to the precharge signal line, but as described above, the precharge signal supply means supplies, to the precharge signal line, the precharge signal that changes continuously or stepwise to compensate for the potential level difference between the respective data lines arising from the effect of parasitic capacitance. With the precharge signal

concurrently supplied, control is simplified while the luminance non-uniformity and chrominance non-uniformity are lowered (column 7, lines 31-410 corresponding to wherein the adjusting means adjusts the potential differences between the pixel electrodes and the common Electrode to compensate for effects of variations in drain voltages caused by parasitic capacity in the film transistors and compensate for irregularities in DC voltage..

As for claims 6, 14, and 23, Aoki et al. teach the voltage power source 604 outputs successively voltages of level V2 and level V1 to the data lines and liquid-crystal pixels LC within a period P1 during which the precharge circuit driving signal PC is Output (Fig.19) corresponding to wherein the voltage divider means is capable of producing a plurality of mutually different sets of voltages as the source drive reference voltages and selectively supplying one of the sets as outputs.

As for claims 10, 18, and 27, Aoki et al. teach The precharge signal supply circuit 170 supplies the precharge signal line 174 with a precharge signal PV, the polarity of which is switched each time the scanning line 110 is selected (every horizontal scanning line) (column 19, lines 17-20) corresponding to said driver circuit further including common electrode signal generator means including switching means only for switching between the ground potential and the positive power source to provide a fixed potential to the common electrode.

As for claims 11, 19 and 28, Aoki et al. teach a precharge signal of a positive polarity or a negative polarity supplied to a precharge signal line 174 is supplied to the respective data lines 112a, 112b, . . . , thereby precharging the data lines 112. The

polarity here refers to the one relative to the common electrode potential applied to the common electrode (Fig.1) corresponding to wherein the common electrode signal generator means is built in the source driver.

As for claims 20 and 29, Aoki et al. teach the light from a light source lamp FIG. 31 (301) is collimated by a reflective mirror 302 into a white parallel luminous flux W corresponding to wherein the liquid crystal display is one of reflective, opaque, reflective/transparent, or transparent types.

As for claim 30, Aoki et al. teach a laptop personal computer FIG. 31 (1200) corresponding to wherein the electronics include a mobile telephone, a personal data assistant, a notebook personal computer, a portable television set, and a portable game machine.

### ***Allowable Subject Matter***

Claim 5, 7-9, 13, 15-17, 22, and 24-26, would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the claimed invention is directed to a drive circuit for use in a liquid crystal display. Claims 5, 7-9, 13, 15-17, 22, and 24-26 identifies a uniquely distinct feature "high-and-low-reference-voltage-interconnecting means for altering the high and low reference voltages in an interconnected manner; and low-reference-voltage specifying

means for specifying a ratio of the low reference voltage to the high reference voltage".

The closest art, Aoki et al. as discussed above, fails to anticipate or render the above underlined limitations obvious.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean Lesperance whose telephone number is (703) 308-6413. The examiner can normally be reached on from Monday to Friday between 8:00AM and 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709 .

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA, Sixth Floor (Receptionist).

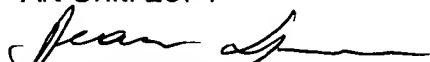
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Jean Lesperance


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Date 2-7-2004

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RICHARD HJERPE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600